

A STUDY ON THE ATTITUDE OF UNIVERSITY TEACHERS TOWARDS ICT WITH SPECIAL REFERENCE TO THE SELECT UNIVERSITIES OF ASSAM

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ABSTRACT

The use of information and communication technology (ICT) such as Internet applications, CD-ROMs, video technology and various computer attachments and software programs have caused many changes in society. However, the impact on education may just beginning to be felt as teachers integrate this new technology into their teaching. It has been found that ICT has a positive impact on student's motivation and their academic performance. Keeping in mind the possible advantages of ICT in higher education it is a vital issue to enquire the attitude of university teachers towards ICT. Therefore the purpose of this study is to enquire the knowledge of ICT among the teachers, to enquire the attitude of university teachers towards ICT in relation to Discipline, Gender, Age, and Teaching Experience and to examine the infrastructural facilities for teachers for use of ICT. Descriptive survey method has been applied and a sample of 100 teachers of Gauhati University has been chosen proportionately from the following disciplines namely, science, arts, commerce, management and law. The relevant data has been collected through an Attitude scale specially designed to test attitude towards ICT among university teachers. From the study it has been found that Age difference is a dominant factor in the use and integration of ICT for classroom teaching. Further, equivalent infrastructural facilities must be provided for efficient use of ICT.

KEYWORDS: *knowledge of ICT, Descriptive survey & efficient use of ICT*

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INTRODUCTION

Modern era has been marked by two important strands of technological development converged to give rise to what is known as 'Information Communication Technology'. The first is the creation and development of 'personal computer' (PC) and assorted software and the second strand is the revolution in telecommunications. With the advances of these two sectors it has made possible the transmission of new kinds of information in quantities and at a remarkable speed. The impact of this third great revolution (first being the agricultural revolution and second the industrial revolution) has been felt in almost all area of human existence including in the field of education. Infact, countries all over the world have identified the significant role of information and communication technology (ICT) in improving the standard of education (Kozma & Anderson, 2002; Pelgrum, 2001; Hennessy, Ruthven, & Brindley, 2005; Goodison, 2003; Kangro & Kangro, 2004). Throughout the ages, education has been confined to a privileged section. But, due to the developments in the field of information and communication technology a large section of masses may be addressed, in relation to their learning needs. It is interesting to note that the barriers, that exist between the demand and supply of education in various fields of education more specifically in the field of higher education may be overcome by means of ICT through total

learning situation of holistic nature. ICT has lots of potentiality to improve and manage the delivery of education information with the help of-

- Teaching
- Sharing of Resources
- Professional Development of Teachers
- Increasing Accessibility
- Research and Development
- Virtual University
- Bridging the disparity of educational opportunity.

Tools of ICT used for Education

- Desktop Video Conferencing
- Teleconferencing
- Computer Aided Learning
- Multi-media information superhighway
- Internet
- Web Based Training

Significance of the study

The teacher's role in the integration of computers in school is obviously very important, and every educational reform effort should take into consideration of teachers' knowledge, skills, beliefs, and attitudes (Cuban, 2000). Watt (1980) states that beliefs and attitudes play a fundamental role in the way teachers deal with ICT in the classrooms. In other words, dealing effectively with ICT relates not only to knowledge of the capability, limitations, applications, and implications of ICT, but also to individuals' attitudes and perceptions regarding ICT tools. Veen (1993) stated that, the effective implementation of ICT depends upon users', having a positive attitude towards it. Teachers who have positive attitudes toward ICT and perceive it, to be useful in promoting learning will evidently integrate ICT, in their classroom more easily than others (Becker & Riel, 2000; Cox, Preston, & Cox, 1999; Pedretti, Smith-Mayer, & Woodrow, 1999; Sandholtz, Ringstaff, & Dwyer, 1997). Hence, from this perspective, the researcher intends to examine the factors that may possibly impede teachers' efforts, to teach with technology in the classrooms. Such factors are those of (a) teachers' knowledge of technology tools, (b) teachers' frequency of using technology for personal purposes, (c) teachers' frequency of using technology for instructional purposes, in different content areas, (d) teachers' attitudes toward technology, (e) teachers' self-confidence in using technology in teaching and learning, and availability of ICT resources, for teachers' disposal.

Objectives

The study has the following objectives.

- To enquire the attitude of university teachers towards ICT in relation to Discipline,
- To enquire the attitude of university teachers towards ICT in relation to Gender.
- To enquire the attitude of university teachers towards ICT in relation to Age.
- To enquire the attitude of university teachers towards ICT in relation to Teaching Experience
- To examine the availability of infrastructural facilities for teachers for use of ICT.

Hypotheses

***H₀₁:** There is no significant difference in the attitude of university teachers towards ICT in relation to Discipline.

H_{1.1}: There is significant difference in the attitude of university teachers towards ICT in relation to Discipline

*** H₀₂:** There is no significant difference in the attitude of university teachers towards ICT in relation to Gender.

H_{2.1}: There is significant difference in the attitude of university teachers towards ICT in relation to Gender.

***H₀₃:** There is no significant difference in the attitude of university teachers towards ICT in relation to age.

H_{3.1}: There is significant difference in the attitude of university teachers towards ICT in relation to age.

***H₀₄:** There is no significant difference in the attitude of university teachers towards ICT in relation to teaching experience.

H_{4.1}: There is significant difference in the attitude of university teachers towards ICT in relation to teaching experience

RESEARCH METHODS

The present study is based on the descriptive survey method.

Method of Sampling

In the present study, a sample of 4 universities had been selected on the basis of convenient sampling technique. The population of the study comprises of all the teachers of these select universities. The researcher has divided the population into three categories, viz (i) Art, (ii) Science and (iii) Commerce & Management The distribution of population into these three categories are as follow.

Select Universities	Arts	Science	Commerce & Management	Total
Gauhati University	121	101	14	236
University of Science and Technology Meghalaya	39	114	17	170
Mahapurush Srimanta Sankardev Vishwavidyalaya, Nagaon	16			16
Kumar Bhaskar Varma Sanskrit and Ancient Studies University, Nalbari	12			12
Total	188	215	31	Population size=441

Source: website of select Universities

Out of the all teachers of select universities, a sample of 100 teachers from the three streams (i.e Arts, Science and Commerce & Management), had been chosen through the stratified random sampling technique. The selection of teacher respondents from each stream of population was made on proportionate basis. The sample size is 100. The sample distribution for each stream is as follows -

Select Universities	Arts	Science	Commerce & Management	Total
Gauhati University	28	26	4	58
University of Science and Technology Meghalaya	9	23	3	35
Mahapurush Srimanta Sankardev Vishwavidyalaya, Nagaon	4	-	-	4
Kumar Bhaskar Varma Sanskrit and Ancient Studies University, Nalbari	3	-	-	3
Total	44	49	7	100

From each select university 44 Arts, 49 Science and 7 Commerce teachers have been selected randomly. The representation of Science, Arts & Commerce streams in the sample was, based on the proportion of number of teachers in each stream.

Sample Frame

List of teachers available in the websites of the select universities.

Tools

The data have been collected with the help of a scale entitled ‘A SCALE TO MEASURE UNIVERSITY TEACHERS’ ATTITUDE TOWARDS ICT developed by Dr. V. MEHRA and Z. N. FAR’. The reliability of the scale is 0.604. There are all together 63 items covering 7 important domains namely, Confidence in ICT use, Encouragement from colleagues, ICT socialization, ICT related advantages, ICT related complexity and barriers to ICT use, with both positive and negative items. The scoring was based on a five point Likert type scale.

The Method of Scoring of the Results

The scale of “university teachers’ attitude towards ICT” has 63 items, out of which 39 items are favourably worded and the remaining 24 items are unfavourably worded. The scores range from 0 to 284. Higher score indicates the favourable attitude towards ICT and the details of scoring are given in the following table-

Scoring Procedure

Scores	Result
251 – 284	Highly Favourable
185– 250	Favourable
168 – 184	Neutral
146 -167	Unfavourable
0 – 145	Highly Unfavourable

Statistical Applications

The data collected were analyzed by using ANOVA and Large Sample test (z-test). The hypotheses were tested at the 0.05 level of significance.

RESULTS

- To enquire the attitude of university teachers towards ICT in relation to Discipline.

Table 1: Average Scores and Result of Attitude of University Teachers towards ICT in Relation to Discipline

Disciplines	Average Scores	Result
Arts	192	Favourable
Science	200	Favourable
Commerce & Management	160	Neutral

From the above table it may be deduced that, teachers in the disciplines of Arts and science have favourable attitude towards ICT, in comparison to the teachers in the discipline of Commerce.

H₀₁: There is no significant difference in the attitude of university teachers, towards ICT in relation to Discipline (Arts, Science and Commerce).

Table 2: ANOVA of the Attitude of University Teachers towards ICT in Relation to Discipline

Sources of Variance	Sum of Square	Df	F	Critical Value at 5% Level of Significance
Between groups	1120.75	2	0.125	3.15
Within groups	433171	97		

The hypothesis one has been tested by using ANOVA statistical method (Table-2) and the F- calculated value 0.125 was lesser than the table value and the result was not significant at 0.05 level. The hypothesis-H_{0.1} was accepted. Therefore, it may be stated that, there is no significant difference in the attitude of university teachers towards ICT in relation to disciplines (Arts, Science and Commerce & Management).

- To enquire the attitude of university teachers towards ICT in relation to Gender.

Table 3: Average Scores and Result of Attitude of University Teachers towards ICT in Relation to Gender

Gender	Average Scores	Result
Male	194	favourable
Female	189	favourable

The above Table reveals that, both male & female groups have favourable attitude towards ICT.

H₀₂: There is no significant difference, in the attitude of university teachers towards ICT in relation to Gender.

Table 4: Large Sample Test Analysis on difference in the Attitude of University Teachers towards ICT in Relation to Gender

Particulars	N	Mean	S. D	Calculated Value of Z	Z Value at 5% Level of Significance
Male	56	140	44	1.14	1.96
Female	44	149	33		

The test of hypothesis two has been done, using Large Sample test (z-test) statistical method (Table-4). It has been found that, the z- calculated value was lesser than the table value and the result was not significant at 0.05 levels.

The hypothesis-H₀₂ was accepted. Hence, it may be stated that attitude towards the use of ICT was alike irrespective of gender. The result of the hypothesis two tells us that male and female teachers do not differ significantly in their attitude towards the use of ICT resources as instructional tool.

- To enquire the attitude of university teachers towards ICT in relation to Age.

Table 5: Average Scores and Result of Attitude of University Teachers towards ICT in Relation to Age

Age Groups	Average Scores	Result
25 years or below	192	Favourable
26-35 years	166	Neutral
36-45 years	163	Neutral
46 years or above	123	Unfavourable

Attitude of the teachers towards ICT resources in relation to age have been studied in four categories (Table 5). The mean values of teachers in each category (as shown in the above Table) reveal that the teachers in the age group of 25 or below have favourable attitude, towards ICT resources in comparison to the other groups as their average score was highest 192. Further, the teachers in the age group of 46 years or above have unfavourable attitude towards ICT tools as their mean score is lowest 123. Further, the remaining two group, i.e., 26-35 years and 36-45 years are found neutral in their attitude towards application of ICT in education.

H₀₃: There is no significant difference in the attitude of university teachers towards ICT in relation to age

Table 6: ANOVA of the Attitude of the University Teachers towards ICT in Relation to Age

Sources of Variance	Sum of Square	df	F	Critical Value at 5% Level of Significance
Between groups	3728	3	4.56	3.15
Within groups	26194	96		

The third hypothesis on attitude of university teachers towards ICT, in relation to age has been tested through Analysis of Variance technique and the following were the findings of the result-

The obtained F value 2.573 is significant, at the 0.05 level of significance (Table-6). Hence, the hypothesis-H₀₃ is rejected. It can be stated that, there exists significant difference in the attitude of university teachers towards ICT, in various age groups namely, 25 years or above, 26-35 years, 36-45 years and 46 years or above.

- To enquire the attitude of university teachers towards ICT in relation to Teaching Experience.

Table 7: Average Scores and Result of Attitude of University Teachers towards ICT in Relation to Teaching Experience

Teaching Experience	Average Scores	Result
5 years or below	254	Highly Favourable
10-15 years	274	Highly Favourable
15-20 years	199	Favourable
Above 20 years	184	Neutral

Attitude of the teachers towards ICT resources in relation to the years of teaching experience, have been studied in four categories (Table 7). The average scores of teacher's in each category (as shown in the above Table) reveal that, the

groups in the categories of 5 years and below and 10-15 years of teaching experience have highly favourable attitude, towards ICT resources as their average scores are 254 and 274, respectively. Further, the teachers in the category of teaching experience above 20 years have a neutral attitude towards ICT resources.

H₀₄: There is no significant difference in the attitude of university teachers, towards ICT in relation to teaching experience.

Table 8: ANOVA of the Attitude of the University Teachers towards ICT in Relation to Teaching Experience

Sources of variance	Sum of Square	df	F	Critical value at 5% level of Significance
Between groups	2858	3	4.21	3.15
Within groups	21781	96		

The fourth hypothesis on attitude of university teachers, towards ICT in relation to teaching experience has been tested through Analysis of Variance technique and the following were the findings of the result-

The obtained F value 4.21 is significant, at the 0.05 level of significance (Table-4). Hence, the hypothesis H_{0,4} is rejected. It can be stated that there exists significant, difference in the attitude of university teachers towards ICT in relation to their teaching experiences.

Objective 9. To examine the availability of ICT related infrastructural facilities for teachers use.

The efficient application of ICT, in teaching profession depends not only on attitude of the teachers, at the same time adequacy in infrastructural facilities is equally important.

Table 7: Responses of teachers on infrastructural facilities available for use of ICT (In %) N=100

Particulars	Favourable	Neutral	Unfavourable
Facility of Hardware equipments	86%	4%	10%
Facility of Software Programmes	65%	15%	20%
Internet facilities	38%	34%	28%
Facility of training in ICT	15%	37%	48%
Administrative support for adopting ICT into teaching learning	41%	12%	47%
Quick and efficient technical assistance	35%	10%	55%
Administrative supervision on utilization of ICT	35%	27%	38%

The table-7 reveals that majority of the teachers (i.e 86%), opined in favour of facilities of hardware equipment. 10% respondents, gave negative remarks on the availability of the same. 4% of them, did not give concrete remark on this issue. It shows that, though the majority members of teaching community of the select university were well facilitated with hardware equipment, there is shortage of these equipments in few academic branches of the select universities. Similarly, few teachers (i.e 20% of the sample) reveal their discontentment for insufficiency of software packages. Therefore, it can be interpreted that, the supplying of basic facilities for ICT application is yet to be completed, in entire academic departments of the universities. Again, teachers were not satisfied with the internet facilities, as only 38% respondents gave a favourable response. Further, with regard to, it is worth mentioning that, near about one half of the teachers respondents (48%) have given an unfavourable response, regarding the facility of training in ICT provided, by their respective institutions. In relation to the use of ICT in higher education orientation, or training of teachers play an

important role as teachers may not be well equipped, with the technical skills to improve their teaching quality, by developing their communication skills through proper use of ICT. Even in case of administrative support, for adopting ICT tools, only 41% teachers responded positively, which needs careful consideration for enhancing their competency. Again, majority of the teachers (55%) gave an unfavourable response, with regard to quick and efficient technical assistance which hinders in dealing with ICT resources, in teaching and learning. The teachers gave a mixed response to the question of administrative supervision on utilization ICT. 35% teachers gave a favourable response and 38% gave an unfavourable response. On the same question 27% teachers did not give any concrete answer. Thus, from the above analysis it may be stated that, the infrastructural and other facilities for ICT resources are not satisfactory, in the select universities of Assam.

CONCLUSIONS

ICT has become an integrated part of our daily lives, so it won't be long before it, also becomes an inseparable part of students' and teachers' lives. However, the integration of technology in the education system needs to take into account of numerous socio-technical factors, such as teachers' computer skills, confidence, and attitude toward ICT, infrastructural facilities, institutional climate, etc. But, considering the recent trends of integration of Communications and Information Technologies, in the support and delivery of teaching, it is a high time to energize the seats of higher learning with smart technological devices for enhancing the quality of education. The process of reimagining education must start with the effort of orienting the teachers, as well as the students to know how to make judicious use of ICT tools at their disposal. In order to pace the path of progress of our country it is very important, to intelligently integrate ICT into education. It should further address the needs and concerns of the key players of education, i.e the teachers. However, it needs mentioning that mere application of technological components alone cannot bring improvement, in the quality of education. But, the broad based educational aims can be materialized through reflective, creative and strategic appropriation of new technologies, in the field of higher education.

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